

Claims

1. Fuel cell stack (1) with a plurality of fuel cell elements (2) which are layered on one another with separating plates (3) located in between, to supply a combustion gas (13) at least one inside supply channel (4) and to discharge an exhaust gas (14) at least one inside discharge channel (5) being provided, which extend in the stacking direction, on the first side of the fuel cell elements (2) at the time there being a supply of combustion gas (13) and on the other side at the time there being a supply of oxidizer (15),

characterized in that

on the first side of the fuel cell elements (2)

- there are several lengthwise channels (6) which run parallel for routing of the combustion gas (13),

- a distributor zone (7) which connects the supply channel (4) to the respectively first ends of the lengthwise channels (6), and

- a collecting zone (8) which connects the discharge channel (5) to the end of the lengthwise channels (6) which is the second end at the time, and

on the second side of the fuel cell elements (2) an oxidizer guide (9) is formed which runs in the direction of the lengthwise channels (6) and which is open to the sides of the fuel cell stack (1) for supply of the oxidizer (15).

2. Fuel cell stack as claimed in claim 1, wherein the at least one supply channel (4) and the at least one discharge channel (5) are located in the area of one side (11) of the fuel cell stack (1).

3. Fuel cell stack as claimed in claim 1, wherein the at least one supply channel (4) and the at least one discharge channel (5) are arranged diagonally opposite with respect to the fuel cell stack.

4. Fuel cell stack as claimed in one of claims 1 to 3, wherein the distributor zone (7) proceeding from the supply channel (4) tapers along the first ends of the lengthwise channels (6)

and the collecting zone (8) proceeding from the discharge channel (5) tapers along the second ends of the lengthwise channels (6).

5. Fuel cell stack as claimed in one of claims 1 to 4, wherein the distributor zone (7) and the collecting zone (8) are made symmetrical with respect to the fuel cell elements.

6. Fuel cell stack as claimed in one of claims 1 to 5, wherein additional cooling surfaces are formed by the distributor zone (7) and the collecting zone (8).

7. Fuel cell stack as claimed in one of claims 1 to 6, wherein the distributor zone (7) and/or the collecting zone (8) form heat exchange surfaces by which the heat energy can be transferred between the combustion gas (13) and the oxidizer (15).